NJ Health
New Jersey Department of Health

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Asthma in New Jersey
Chapter 4: Adults Living with Asthma

The New Jersey Department of Health (NJDOH) monitors asthma prevalence using the New Jersey Behavioral Risk Factor Survey (NJBRFS), an ongoing population-based telephone survey of non-institutionalized adult residents aged 18 years and older. The NJBRFS represents a geographical subset of the national Behavioral Risk Factor Surveillance System (BRFSS), which was established in 1984 and is currently implemented across all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam where it is being used to monitor and improve the health of residents. The Asthma Call-back Survey (ACBS) was later developed by the CDC Air Pollution and Respiratory Health Branch as a comprehensive asthma related extension of the BRFSS. Respondents who report a lifetime asthma history on the BRFSS are then called back in approximately two weeks to complete the ACBS, which was designed to collect detailed information about people living with asthma. In 2008, New Jersey joined 35 other states in administering the ACBS among respondents reporting a lifetime asthma history on the BRFSS.

Most of this chapter describes adults living with asthma as derived from the 2008-2010 ACBS surveys. Estimates for adults with current asthma are based on the number of adult ACBS respondents with lifetime asthma who report that they still have asthma. Where noted, the larger BRFSS survey is used.
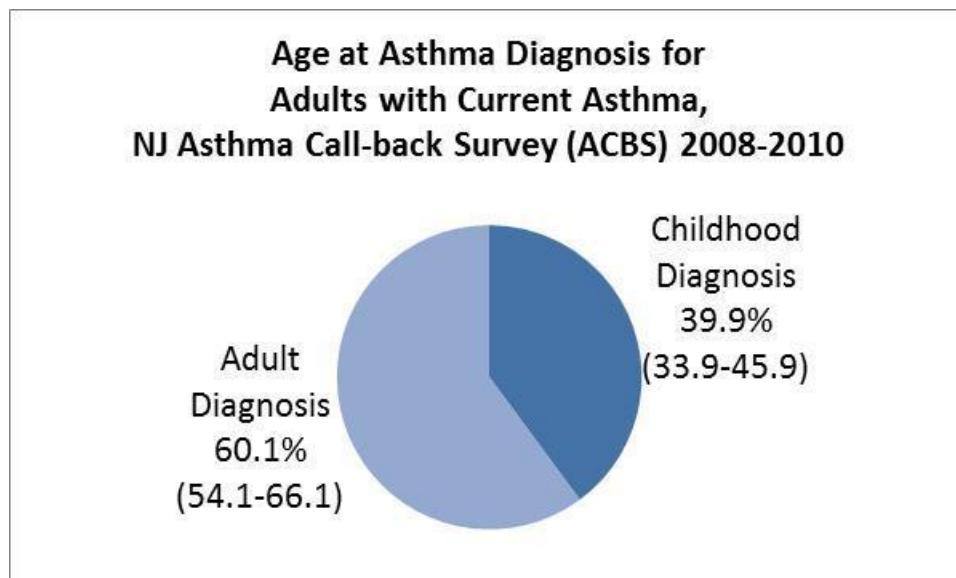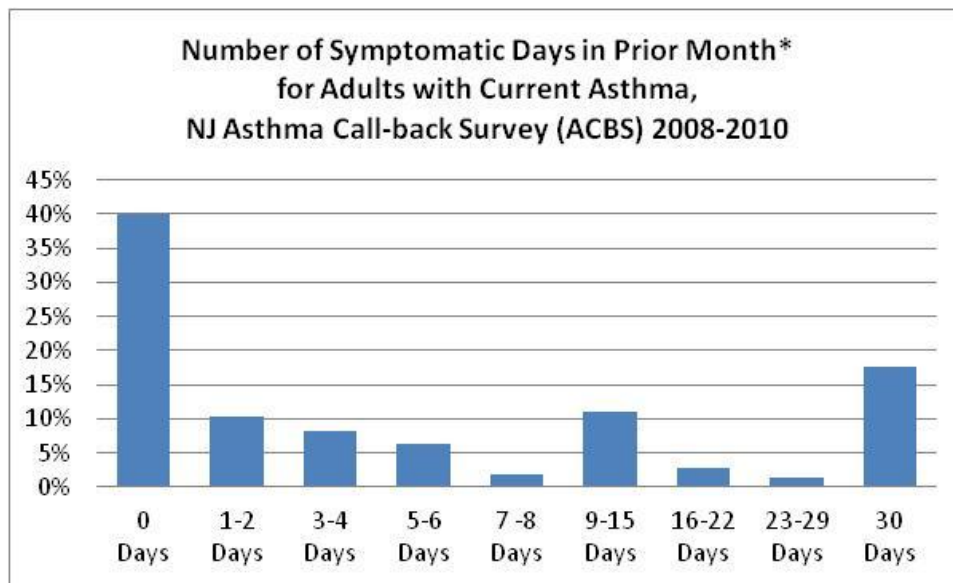
Asthma History

Figure 1

Age at Asthma Diagnosis for
Adults with Current Asthma,
NJ Asthma Call-back Survey (ACBS) 2008-2010

Childhood Diagnosis 39.9% (33.9-45.9)

Adult Diagnosis 60.1% (54.1-66.1)

Table 1		
Age at Asthma Diagnosis for Adults with Current Asthma, NJ Asthma Call-back Survey (ACBS) 2008-2010		
	Adult Diagnosis (18 or older)	Childhood Diagnosis (under 18)
	Percent (95% CI)	Percent (95% CI)
Sex		
Males	47.4 (36.1-58.7)	52.6 (41.3-63.9)
Females	66.7 (60.5-73.0)	33.3 (27.0-39.5)
Age		
18-34 years	24.4 (13.6-35.2)	75.6 (64.8-86.4)
35-64 years	74.5 (69.7-79.2)	25.5 (20.8-30.3)
65+ years	86.2 (80.5-92.0)	13.8 (8.0-19.5)

Based on the Rao-Scott Chi-Square Test, age at asthma diagnosis is associated with sex ($p=.0019$) and age ($p<.0001$).

Among adults with current asthma, about 40 percent were diagnosed as a child (under age 18) and about 60 percent were diagnosed as an adult (18 and over). The estimates varied by gender with a larger proportion of males reporting diagnosis as a child and a larger proportion of females reporting diagnosis as an adult. The estimates also varied by age, with younger respondents reporting a younger age of diagnosis. There were no significant differences by race/ethnicity, household income or respondent education, and the prevalence of a childhood versus an adult diagnosis did not change from 2008 to 2010.

Symptoms and Episodes

Figure 2

Number of Symptomatic Days in Prior Month*
for Adults with Current Asthma,
NJ Asthma Call-back Survey (ACBS) 2008-2010

*Month defined as 30 days

Approximately 40 percent of adults with current asthma did not experience any asthma symptoms in the past month. In contrast, about 18 percent of adults with current asthma experienced asthma symptoms every day during the prior month. Adults with current asthma experienced asthma symptoms for about 8.6 days (7.4-9.8) on average in the past month. Reports of symptomatic days did not change significantly in the period 2008 to 2010.
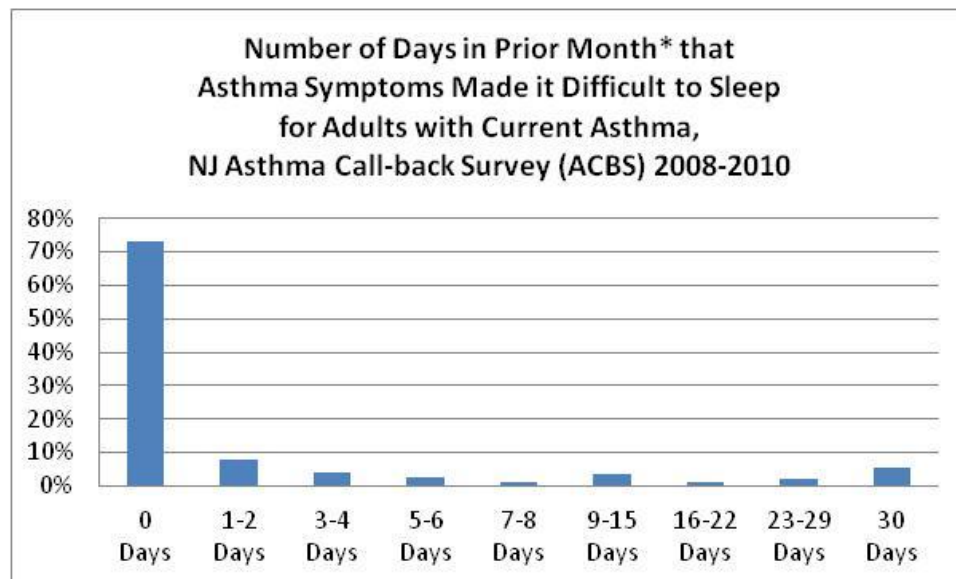
Table 2	
Adults with Current Asthma who Experience 8 or More Symptomatic Days in Prior Month*, NJ Asthma Call-back Survey (ACBS) 2008-2010	
	Percent (95% Confidence Interval)
Sex	
Males	27.1 (17.4-36.9)
Females	36.7 (31.3-42.1)
Age	
18-34 years	**21.2 (9.6-32.7)**
35-64 years	**38.9 (33.7-44.2)**
65+ years	**38.2 (30.4-45.9)**
Race/Ethnicity	
White, Non-Hispanic	31.8 (26.5-37.1)
Black, Non-Hispanic	33.5 (16.9-50.2)
Hispanic	44.1 (30.1-58.1)
Household Income	
Less than -$19,999	45.0 (28.0-62.0)
$20,000-$34,999	45.1 (33.8-56.3)
$35,000-$74,999	30.7 (22.1-39.3)
$75,000 +	28.5 (20.9-36.1)
Respondent Education	
Did Not Graduate High School	**35.6 (20.2-51.0)**
High School Graduate	**44.3 (32.6-56.0)**
Attended College or Technical School	**34.6 (26.0-43.2)**
College or Technical School Graduate	**24.5 (18.1-30.9)**
Total	33.4 (28.6-38.2)

*Month defined as 30 days

Based on the Rao-Scott Chi-Square Test, the percent with 8+ symptomatic days is associated with age (p=.0087) and respondent education (p=.0140), shown in bold above.

The percent of adults with current asthma who are symptomatic for 8 or more days each month varies by age and respondent education.

Figure 3

Number of Days in Prior Month* that
Asthma Symptoms Made it Difficult to Sleep
for Adults with Current Asthma,
NJ Asthma Call-back Survey (ACBS) 2008-2010

*Month defined as 30 days

Approximately 73 percent of adults with current asthma reported no asthma-related sleeping difficulty in the past month; however, approximately five percent of adults with current asthma reported asthma-related sleeping difficulty every day during the prior month. Adults with current asthma experienced asthma-related sleeping difficulty on about 3.2 days (2.2-4.2) on average in the month prior to the survey. Reports of the number of days that symptoms caused sleep problems did not change significantly in the period 2008 to 2010.

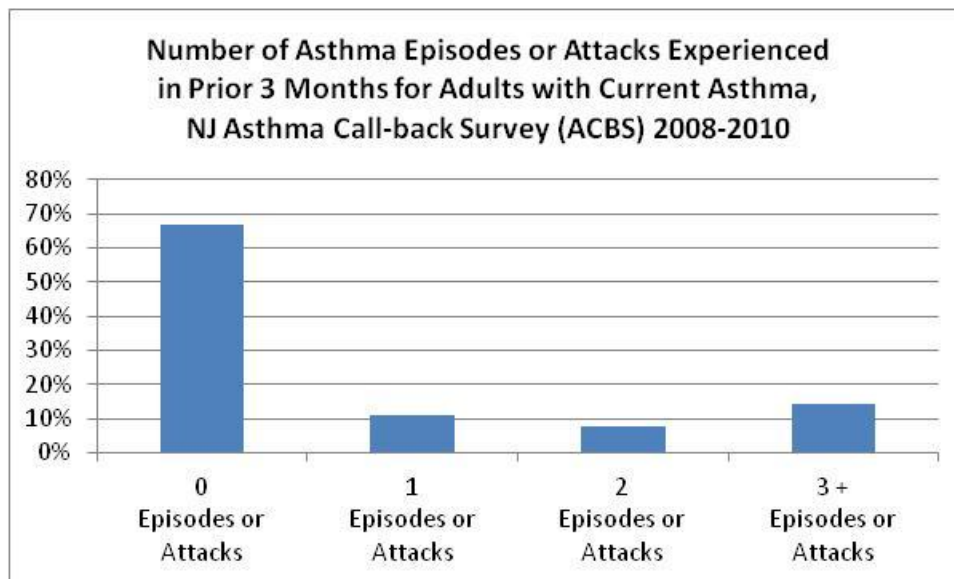| Table 3	
Adults with Current Asthma who Experience Asthma-Related Sleeping Difficulty on 3 or More Days in Prior Month*, NJ Asthma Call-back Survey (ACBS) 2008-2010	
	Percent (95% Confidence Interval)
Sex	
Males	**
Females	21.5 (16.8-26.1)
Age	
18-34 years	**
35-64 years	23.4 (18.5-28.2)
65+ years	18.3 (12.3-24.3)
Race/Ethnicity	
White, Non-Hispanic	**13.1 (9.7-16.6)**
Black, Non-Hispanic	**
Hispanic	**32.5 (18.8-46.1)**
Household Income	
Less than -$19,999	**40.3 (22.7-57.8)**
$20,000-$34,999	**40.1 (28.0-52.3)**
$35,000-$74,999	**16.0 (9.2-22.7)**
$75,000 +	**8.1 (3.7-12.5)**
Respondent Education	
Did Not Graduate High School	**33.2 (18.0-48.5)**
High School Graduate	**32.8 (20.5-45.0)**
Attended College or Technical School	**16.8 (10.8-22.8)**
College or Technical School Graduate	**8.5 (5.1-11.9)**
Total	19.2 (14.9-23.6)

*Month defined as 30 days

**Standard errors were larger than the allowable reported range

Based on the Rao-Scott Chi-Square Test, the percent with 3+ days of asthma related sleeping difficulty is associated with race/ethnicity (p=.0019), household income (p<.0001) and respondent education (p<.0001), shown in bold above.

The percent of adults with current asthma who experience asthma related sleeping difficulty on three or more days each month varies by race/ethnicity, household income, and respondent education.

Figure 4

Number of Asthma Episodes or Attacks Experienced in Prior 3 Months for Adults with Current Asthma, NJ Asthma Call-back Survey (ACBS) 2008-2010

Approximately 67 percent of adults with current asthma reported no asthma episodes or attacks in the past three months; however, approximately 14 percent of adults with current asthma reported at least three asthma episodes or attacks in the past three months. Adults with current asthma experienced about 1.9 (1.3-2.4) asthma episodes or attacks on average in the three months prior to the survey. Reports of the number of episodes did not change significantly in the period 2008 to 2010. Estimates for the number of asthma episodes or attacks in the past three months do not account for any seasonal variation that might exist.

Table 4	
Adults with Current Asthma who Experience Two or More Asthma Episodes or Attacks in Prior 3 Months, NJ Asthma Call-back Survey (ACBS) 2008-2010	
	Percent (95% Confidence Interval)
Sex	
Males	18.3 (10.3-26.4)
Females	24.2 (19.5-28.9)
Age	
18-34 years	**16.4 (6.8-26.0)**
35-64 years	**27.4 (22.5-32.4)**
65+ years	**15.0 (9.3-20.7)**
Race/Ethnicity	
White, Non-Hispanic	**22.1 (17.2-27.0)**
Black, Non-Hispanic	*
Hispanic	**39.1 (23.5-54.7)**
Household Income	
Less than -$19,999	25.3 (12.0-38.6)
$20,000-$34,999	21.0 (13.1-28.9)
$35,000-$74,999	23.1 (14.1-32.1)
$75,000 +	21.6 (15.0-28.3)
Respondent Education	
Did Not Graduate High School	23.5 (10.9-36.1)
High School Graduate	23.9 (14.5-33.3)
Attended College or Technical School	22.9 (14.6-31.3)
College or Technical School Graduate	20.1 (14.2-26.1)
Total	22.2 (18.0-26.3)

*Standard errors were larger than the allowable reported range
Based on the Rao-Scott Chi-Square Test, the percent with 2+ asthma episodes or attacks in prior 3 months is associated with age (p=.0302) and race/ethnicity (p=.0017), shown in bold above.

Health Care Insurance, Utilization and Activity Limitation

Table 5 shows a detailed breakdown of seven measures of health care utilization and activity limitations for adults with current asthma. None of the measures showed a change in prevalence from 2008 to 2010.

Table 5	
Adults with Current Asthma and Various Measures of Access, Utilization and Activity Limitation in Past Year, NJ Asthma Call-back Survey (ACBS) 2008-2010	
	Percent (95% Confidence Interval)
Insurance status	
Insured past 12 months	80.7 (75.5-85.9)
Partial insurance past 12 months	8.5 (4.8-12.3)
No insurance at time of interview	10.8 (6.7-14.9)
Routine doctor visits, past year	
None	37.6 (32.1-43.2)
One	25.0 (20.1-29.8)
2-5 visits	29.8 (25.3-34.3)
6 or more visits*	7.6 (5.5-9.8)
Urgent doctor visits, past year	
None	71.5 (66.9-76.1)
One	14.5 (10.9-18.1)
Two or more*	14.1 (10.7-17.4)
ER visits, past year	
None	88.3 (85.5-91.2)
One	5.5 (3.7-7.4)
2 or more*	6.1 (3.9-8.3)
Hospital stays, past year	
None	95.2 (93.5-96.9)
One	3.5 (1.9-5.0)
2 or more*	1.3 (0.6-2.0)
Missed work or activity days, past year	
No days	68.4 (63.7-73.1)
1-7 days	22.9 (18.9-26.9)
8 – 30 days	5.7 (3.4-7.9)
31 or more days*	3.1 (1.6-4.6)
Activity limited, past year	
Not at all	39.5 (33.9-45.0)
A little	37.0 (32.0-42.0)
A moderate amount	15.5 (12.1-18.9)
A lot	8.0 (5.6-10.4)

*Note—these measures allowed responses of 1-365. There appeared to us to be coding errors involving values of 77 and 88, so these were classified as missing.

Insurance. About 19 percent of adults with current asthma either had no insurance at the time of the survey, or reported gaps in insurance during the past year. About 81 percent had insurance for the entire twelve-month period prior to the survey. There were significant differences by age, household income and respondent education, as shown in Table 6.

Routine doctor visits. Nearly 38 percent of adults with current asthma had no visits to a doctor or other health professional for a routine checkup for their asthma in the past year. About 38 percent had one or two visits, and about 24 percent had three or more visits. There were significant differences by age, race/ethnicity, household income and respondent education, as shown in Table 6.

Urgent doctor visits. Nearly 29 percent of adults with current asthma had one or more visits to a doctor or other health professional in the past year for urgent treatment of worsening asthma symptoms, or for an asthma episode or attack. There were significant differences by age and race/ethnicity, as shown in Table 6.

Emergency room visits. Almost 12 percent of adults with current asthma had one or more asthma-related visits to an emergency room or urgent care center in the twelve months prior to the survey. There were significant differences by sex, age, race/ethnicity and respondent education, as shown in Table 6.

Hospital stays. Nearly five percent of adults with current asthma had one or more overnight hospital stays due to their asthma in the past year (overnight stays in the emergency room were not included). There were no significant differences among any of the demographic groups on this measure.

Missed work or activity days. About 31 percent of adults with current asthma missed one or more days of work or other usual activity in the prior year because of their asthma. There were significant differences by sex and age, as shown in Table 7.

Activity limitation, respondent's classification. Almost 61 percent of adults with current asthma reported some kind of activity limitation due to their asthma in the past year—nearly 24 percent reported that they limited their activities a moderate amount to a lot. There were significant differences by age, race/ethnicity, household income and respondent education, as shown in Table 7.

Table 6 illustrates insurance and utilization measures by demographic group and Table 7 shows measures of activity limitation. Percentages and confidence intervals that showed a significant difference on the Rao-Scott Chi Square Test are shown in bold print in Tables 6 and 7. Values that showed the highest minimum difference (that is, the difference between the lowest confidence interval value for the highest reportable percentage point value and the highest confidence interval value for the lowest reportable percentage point value) are highlighted in color in Tables 6 and 7.

	No constant health insurance	Number of Routine Doctor Visits			One or more urgent visits	One or more ER visits
		None	**One-Two**	**3 or more**		
	Percent(95%CI)	**Percent(95%CI)**	**Percent(95%CI)**	**Percent(95%CI)**	**Percent(95%CI)**	**Percent(95%CI)**
Sex						
Males	24.1 (12.3-36.0)	42.2(30.9-53.5)	36.3(26.4-46.2)	21.5(12.5-30.5)	22.1 (13.3-30.8)	*
Females	16.8 (12.4-21.2)	35.1(29.4-40.9)	39.4(33.6-45.2)	25.4(21.0-29.9)	32.0 (26.8-37.1)	**15.5 (11.6-19.5)**
Age						
18-34 years	**29.1 (15.2-43.1)**	54.7(40.5-69.0)	33.2(19.7-46.7)	*	**18.8 (8.7-28.8)**	*
35-64 years	**17.2 (12.9-21.5)**	30.6(25.6-35.6)	43.2(37.8-48.6)	26.2(21.6-30.9)	34.8 (29.4-40.3)	15.7 (11.4-20.0)
65+ years	*	28.2(20.8-35.5)	31.2(23.7-38.6)	40.6(32.7-48.6)	26.4 (19.1-33.6)	10.7 (5.9-15.5)
Race/Ethnicity						
White, Non-Hispanic	14.7 (9.0-20.4)	37.4(31.0-43.8)	40.5(34.2-46.8)	22.2(17.0-27.3)	23.3 (18.5-28.2)	8.4 (5.6-11.1)
Black, Non-Hispanic	31.1 (14.5-47.6)	52.3(36.7-68.0)	23.8(11.9-35.6)	23.9(13.4-34.4)	25.3 (14.5-36.1)	14.0 (7.7-20.3)
Hispanic	24.6 (11.9-37.3)	18.5(8.0-29.1)	49.9(35.3-64.6)	31.5(18.3-44.8)	57.8 (43.1-72.5)	23.1 (10.1-36.2)
Household Income						
Less than -$19,999	**35.7 (18.8-52.6)**	41.5(23.6-59.5)	17.8(9.3-26.3)	40.7(24.7-56.6)	34.6 (20.2-49.1)	14.9 (6.9-23.0)
$20,000-$34,999	**30.6 (19.0-42.3)**	31.0(19.6-42.3)	40.0(28.9-50.7)	29.3(19.8-38.8)	33.3 (22.1-44.5)	18.3 (9.2-27.5)
$35,000-$74,999	**15.5 (6.0-25.0)**	31.9(21.5-42.2)	41.4(30.9-51.8)	26.8(16.8-36.7)	30.7 (21.3-40.0)	10.9 (5.4-16.4)
$75,000 +	*	42.0(33.2-50.7)	43.3(34.8-51.8)	14.7(9.6-19.8)	25.6 (18.3-32.9)	8.4 (3.9-13.0)
Respondent Education						
Did Not Graduate High School	**38.2 (20.4-56.0)**	*	34.1(17.5-50.6)	39.2(23.2-55.3)	39.6 (23.3-56.0)	*
High School Graduate	**24.2 (12.6-35.7)**	34.0(22.1-45.8)	40.5(28.8-52.3)	25.5(16.3-34.7)	32.0 (21.6-42.3)	**15.6 (8.9-22.4)**
Attended College or Technical School	**14.5 (8.1-20.8)**	35.0(25.2-44.8)	33.8(24.4-43.2)	31.2(21.7-40.8)	29.7 (20.6-38.7)	**12.4 (7.0-17.8)**
College or Technical School Graduate	**14.8 (6.5-23.1)**	44.1(35.7-52.6)	40.9(33.1-48.6)	15.0(10.6-19.4)	22.9 (16.8-29.0)	**6.2 (3.4-9.1)**
Total	19.3 (14.1-24.5)	37.6(32.1-43.2)	38.3(33.2-43.5)	24.1(19.8-28.3)	28.5 (23.9-33.1)	11.7 (8.8-14.5)

Table 6

Adults with Current Asthma and Measures of Insurance and Utilization in Past Year, NJ Asthma Call-back Survey (ACBS) 2008-2010

*Standard errors were larger than the allowable reported range.

Significant values as based on the Rao-Scott Chi-Square Test are shown in bold print. Having no constant health insurance is associated with age (p=.0027), household income (p=.0020) and respondent education (p=.0301); Number of Routine Doctor Visits is associated with age (p<.0001), race/ethnicity (p=.0349), household income (p=.0016) and respondent education (p=.0353); One or more urgent visits is associated with age (p=.0105), race/ethnicity (p<.0001) One or more ER visits is associated with sex (p<.0001), age (p=.0012), race/ethnicity (p=.0071), and respondent education (p=.0076).

Color Key: Difference between the lowest confidence interval value for the highest reportable percentage point value and the highest confidence interval value for the lowest reportable percentage point value	1.5%-4%	4.1%-7%	7.1%

	One or more missed days	Moderate to a lot of activity limitation
Table 7		
Activity Limitation among Adults with Current Asthma, NJ Asthma Call-back Survey (ACBS) 2008-2010		
	Percent (95% CI)	Percent (95% CI)
Sex		
Males	**20.2 (12.3-28.1)**	20.0(12.2-27.9)
Females	**37.3 (31.7-42.9)**	25.3(20.8-29.8)
Age		
18-34 years	**16.3 (7.4-25.1)**	*
35-64 years	**39.6 (34.0-45.2)**	**31.0(25.9-36.1)**
65+ years	**34.0 (25.9-42.0)**	**27.8(21.0-34.7)**
Race/Ethnicity		
White, Non-Hispanic	28.3 (23.1-33.6)	**20.2(15.8-24.6)**
Black, Non-Hispanic	29.3 (17.0-41.6)	**20.9(10.0-31.8)**
Hispanic	47.8 (32.7-62.8)	**40.6(26.5-54.8)**
Household Income		
Less than -$19,999	39.5 (24.5-54.5)	**29.7(16.8-42.6)**
$20,000-$34,999	43.9 (32.1-55.7)	**36.8(26.4-47.3)**
$35,000-$74,999	31.6 (22.4-40.9)	**23.3(15.8-30.9)**
$75,000 +	27.1 (19.6-34.6)	**16.1(10.4-21.9)**
Respondent Education		
Did Not Graduate High School	41.1 (24.1-58.0)	**43.5(26.2-60.9)**
High School Graduate	31.4 (21.4-41.3)	**27.7(19.1-36.3)**
Attended College or Technical School	38.2 (28.6-47.8)	**26.9(19.2-34.6)**
College or Technical School Graduate	25.2 (18.4-31.9)	**13.7(9.4-18.0)**
Total	31.6 (26.9-36.3)	23.5(19.4-27.5)

Based on the Rao-Scott Chi-Square Test, the percent with One or more missed days is associated with sex (p=.0015) and age (p<.0001); the percent with Moderate to a lot of activity limitation is associated with age (p<.0001), race/ethnicity (p=.0277), household income (p=.0070) and respondent education (p=.0001). Significant differences are shown in bold.

| Color Key: Difference between the lowest confidence interval value for the highest percentage point value and the highest confidence interval value for the lowest percentage point value	1.5%-4%	4.1%-7%	7.1%

Influenza (Flu) Shot

People with asthma are at increased risk for complications from influenza, so the CDC recommends annual vaccinations against seasonal influenza as well as other preventive measures for people with asthma. Only the flu shot, rather than the nasal spray, is recommended for people with asthma. To investigate the frequency of influenza shots, we looked at the NJBRFS Survey. Because the frequency of flu shots appears to have increased over the 2008-2010 period, we use only the 2010 data.

In 2010, almost 44 percent of adults with current asthma reported getting a vaccination against influenza by an injection (95 percent confidence interval of 39.2 percent to 48.3 percent).

There were significant differences by age among adults with current asthma getting the flu shot, as shown below in Figure 5. The percentage of adults 65 and over who had gotten the vaccine was higher than those in other age groups. Among adults with current asthma, there was no association between other demographic variables (sex, race/ethnicity, household income or respondent education) with receiving a flu shot in 2010.

Figure 5

Percent of Adults with Current Asthma Getting a Flu Shot, NJ BRFSS Survey, 2010
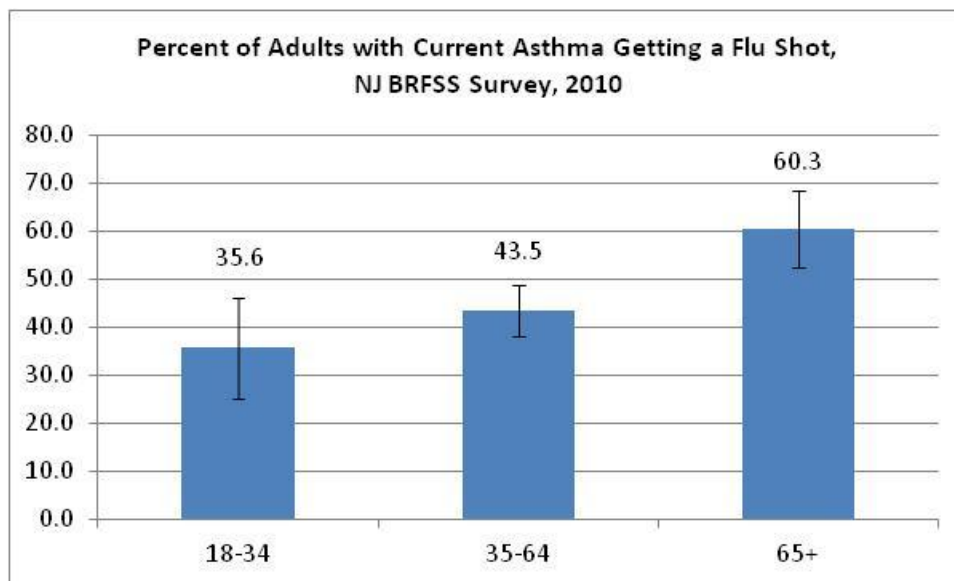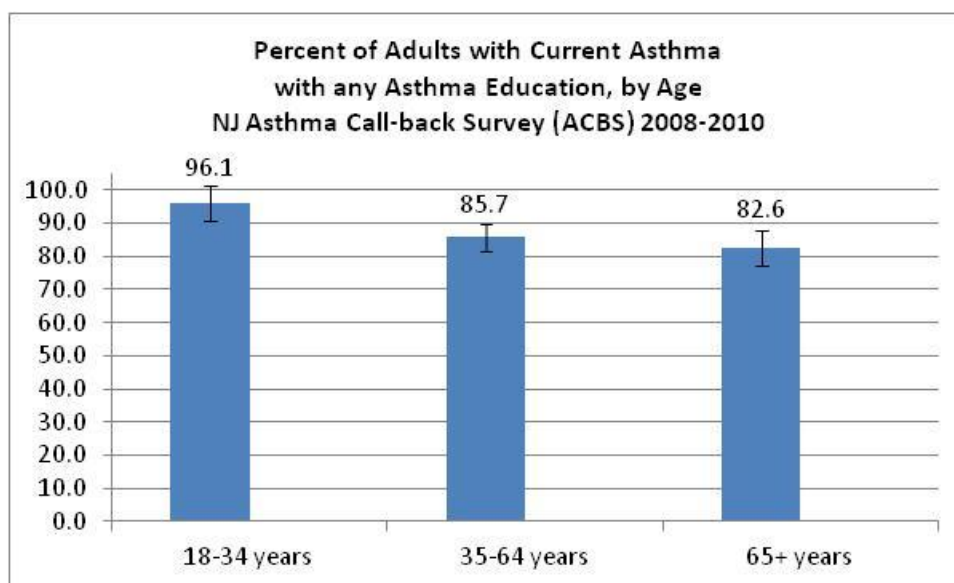
Rao-Scott Chi Square, p=.0020

Asthma Education

Asthma self-management education is a major component of the asthma treatment guidelines. This section of the survey asks respondents about five aspects of self-management education. In all, nearly 90 percent had received some form of asthma education, and close to half had received three or more types of education. Table 8 below shows the specific numbers.

Table 8	
Adults with Current Asthma with Asthma Management Education, **NJ Asthma Call-back Survey (ACBS) 2008-2010**	
	Percent (95% Confidence Interval)
Ever taught to recognize early signs or symptoms of an asthma episode	68.8 (64.1-73.5)
Ever taught what to do during an asthma episode or attack	79.1 (75.2-83.0)
Ever taught to use a peak flow meter to adjust your daily medications	47.5 (42.1-52.8)
Ever given an Asthma Action Plan	31.4 (26.6-36.2)
Ever taken a course or class on how to manage your asthma	6.8 (4.1-9.5)
Any Asthma Education	88.4 (85.5-91.4)
3 or More Types of Asthma Education	47.1 (41.7-52.4)

There were no differences in the prevalence of any of these measures by year. There were also no differences in prevalence by levels of household income or respondent education on any of these measures.

There were differences by age in the receipt of any asthma education as shown below in Figure 6—96 percent respondents aged 18 to 34 reported some type of asthma education, as compared with only about 86 percent of respondents aged 35 to 64 and 83 percent of respondents who were 65 or older.
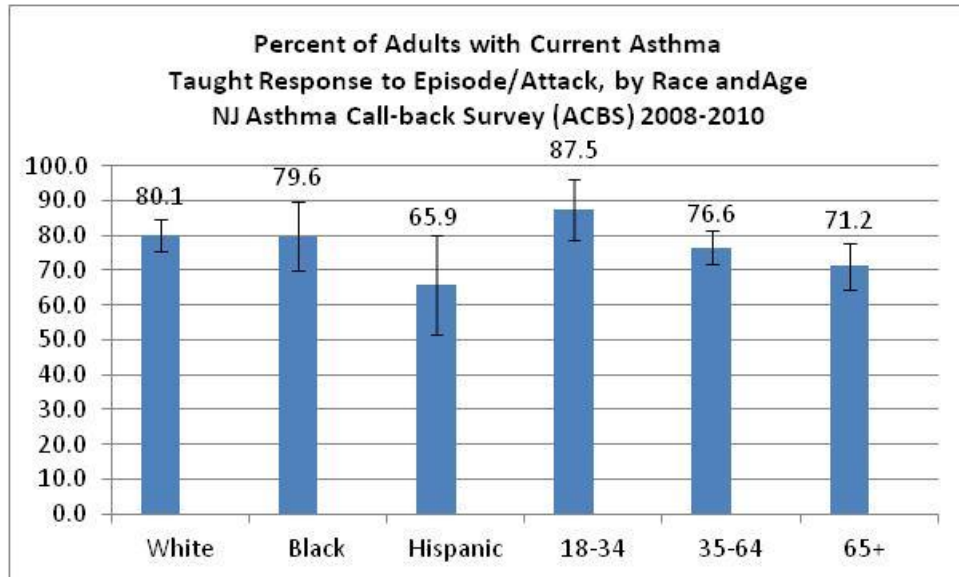
Figure 6

Percent of Adults with Current Asthma
with any Asthma Education, by Age
NJ Asthma Call-back Survey (ACBS) 2008-2010

Rao-Scott Chi Square was p=.0146

There were differences by race/ethnicity and age in having been taught what to do during an asthma episode or attack. White, non-Hispanic and Black, non-Hispanic adults with current asthma had a similar rate of about 80 percent, while Hispanic adults with current asthma reported around 66 percent, as shown below in Figure 7.

Figure 7

Rao-Scott Chi Square for race/ethnicity was p=.0361; for age it was p=.0268.

There were differences by sex and race/ethnicity with respect to asthma management plans, as shown below in Figure 8. About 36 percent of women with current asthma reported being given a plan, as opposed to close to 25 percent of men. About 36 percent of Hispanic adults reported being given a plan, as compared with about 30 percent of Black, non-Hispanic adults, and 29 percent of white, non-Hispanic adults with current asthma.

Figure 8
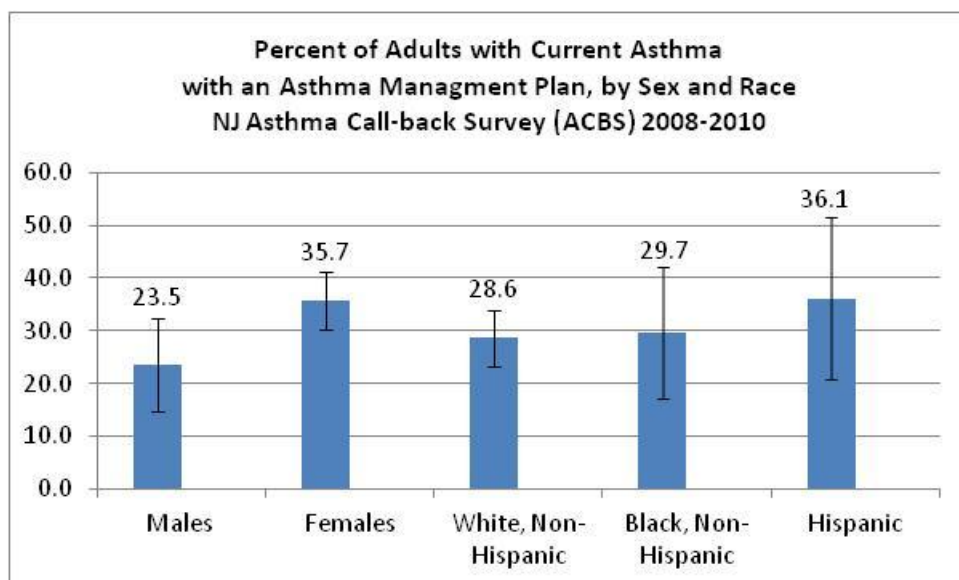
Rao-Scott Chi Square for sex was p=.0316; for race/ethnicity it was p=.0359.

Environmental Changes

Environmental exposures are a major trigger for asthma, and efforts to reduce exposure are an important part of asthma management. Table 9 below describes the exposure of adults with current asthma to various potential triggers and also their efforts to reduce exposure.

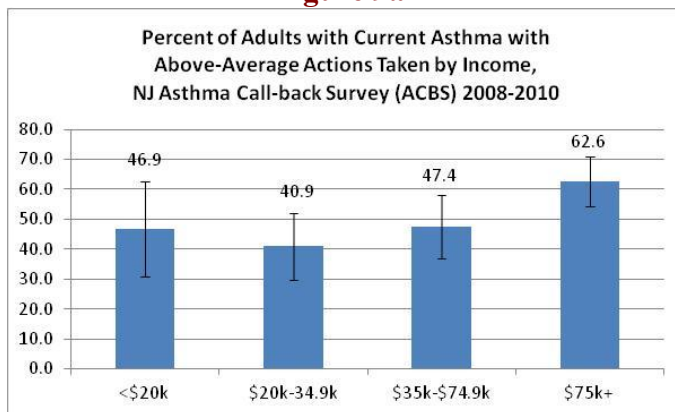| Table 9	
Percentage of Adults with Current Asthma with Environmental Exposures and Actions Taken to Reduce Exposures, NJ Asthma Call-back Survey (ACBS) 2008-2010*	
	Percent (95% Confidence Interval)
Environmental Exposures	
Gas used for cooking	68.2 (63.2-73.2)
Carpeting or rugs in bedroom	64.8 (59.6-70.0)
Pets inside home	53.0 (47.8-58.2)
Wood burning fireplace/stove*	18.1 (9.4-26.8)
Adult respondent is current smoker	13.6 (10.6-16.5)
Smoking inside home (past week)	10.7 (6.4-14.9)
Mold (past 30 days)	10.6 (7.7-13.5)
Unvented gas fireplace/unvented gas stove	9.0 (4.4-13.5)
Mice or rats (past 30 days)*	5.4 (2.8-8.1)
Average percent of exposures experienced (mean)[+]	26.0 (24.7-27.3)
Actions to Reduce Exposure	
Kitchen exhaust fan regularly used	64.9 (59.7-70.0)
Bathroom exhaust fan regularly used	56.6 (51.4-61.8)
Sheets/pillowcases washed in hot water	44.4 (39.2-49.7)
Mattress cover used	40.0 (34.7-45.4)
Pillow cover used	37.4 (32.2-42.6)
Air cleaner/purifier regularly used	36.4 (31.3-41.4)
Dehumidifier regularly used	31.6 (27.1-36.2)
Pets not allowed in bedroom (if inside pets)	30.4 (22.6-38.3)
Average percent of actions taken (mean)[+]	43.2 (40.8-45.7)
Advised to change home/school/ work environment*	33.7 (25.2-42.2)

*2010 only where marked with this symbol—in these cases, the percentage changed from year to year, possibly due to seasonal differences in the interview schedule. Unless noted, there was no significant change from 2008-2010.

[+]The percent of exposures or actions was calculated for each respondent based upon the number the person reported over the total number possible for that person (cases where the respondent wasn't sure if they were exposed or took the action were excluded). Cockroaches seen in the home during the past 30 days, which was too infrequent to report estimates in the table above, was used in calculating the percentage. We looked for differences in exposures and actions by sex, age, race/ethnicity, household income and respondent education—there were no significant differences in exposures by demographic group; those that we found significant regarding actions taken are discussed below. For our subgroup analyses we looked at the distributions of the percent of exposures and actions, and divided them approximately in half (those less than or equal to 20 percent of exposures—50.3% (95% CI: 45.0%-55.5%) of adults with current asthma--versus those above and those less than or equal to 40 percent of actions –48.5% (95% CI: 43.1%-53.8%) of adults with current asthma--versus those above).

General caveat: these questions pose a risk for social desirability bias, where respondents may report what they believe to be a socially acceptable answer. This could lead to under-reporting of environmental exposures and over-reporting of the actions to reduce exposure.
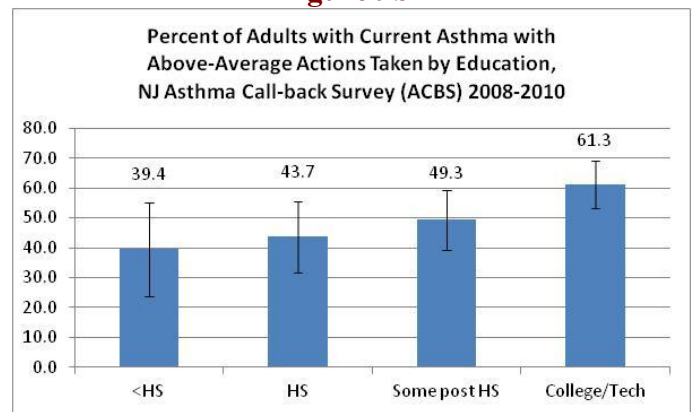
Adults with higher household incomes and/or more education were more likely to take actions to prevent exposure, as shown below.

Figure 9a

Percent of Adults with Current Asthma with Above-Average Actions Taken by Income, NJ Asthma Call-back Survey (ACBS) 2008-2010

See Table 9 note on definition of average
Rao-Scott Chi Square, p=.0245

Figure 9b

Percent of Adults with Current Asthma with Above-Average Actions Taken by Education, NJ Asthma Call-back Survey (ACBS) 2008-2010

See Table 9 note on definition of average
Rao-Scott Chi Square, p=.0265

The percent of adults with current asthma advised by a health professional to change items in their home, school or work environment to improve their asthma has declined over the 2008-2010 period from slightly more than 50 percent to about 34 percent, as shown below in Figure 10. There were no differences by sex, age, race/ethnicity, household income or respondent education for this measure.
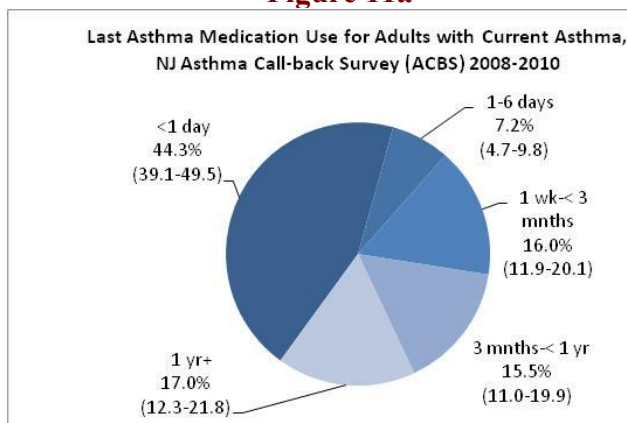
Figure 10

Percent of Adults with Current Asthma Advised to Change Environment, NJ Asthma Call-back Survey (ACBS) 2008-2010
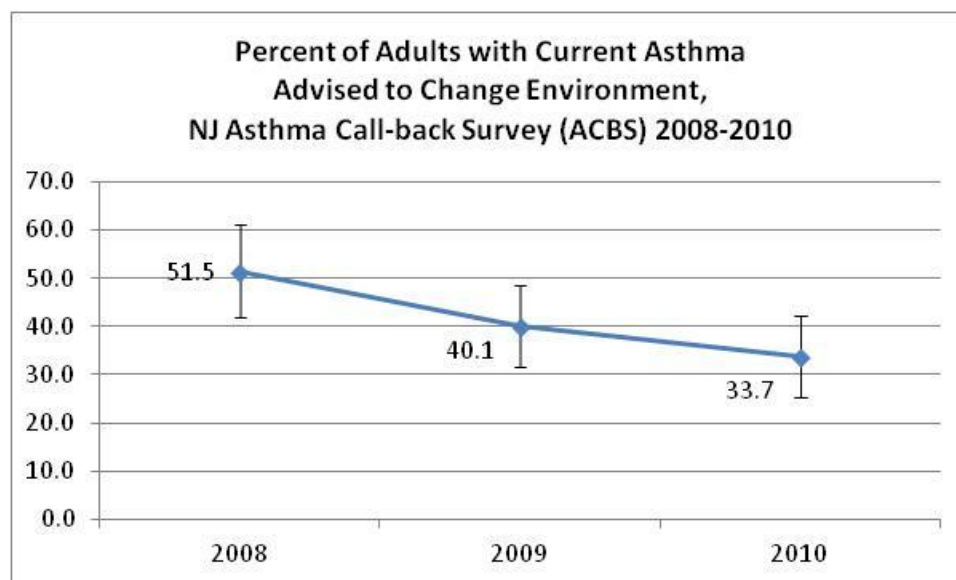
Rao-Scott Chi Square, p=.0169

Medications

There are two basic types of asthma medications. Long-term control medications are designed to be taken daily over the long term to maintain control of asthma symptoms. Quick relief medications are designed to provide fast relief for acute asthma symptoms.
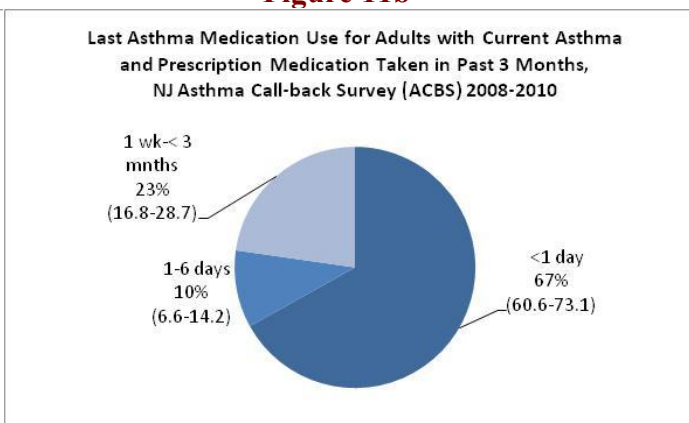
Among adults with current asthma, 63 percent had taken a prescription medication in the past three months. Most of those taking medication within the past three months were taking it frequently—67 percent reported taking medication within the past day. Figures 11a and 11b below show the time since last medication use.

Figure 11a	**Figure 11b**
Note: includes prescription and nonprescription medication.	Note: includes prescription and nonprescription medication.

Forty-one percent of adults with current asthma reported taking a long-term control medication in the past three months and 49 percent reported using a quick relief medication in that time. Twenty-six percent reported using both quick relief and long-term control medications in the past three months. Fifty-two percent of adults with current asthma who had used long-term control medication in the past three months reported proper use (on a daily schedule, not for episodes or attacks and not before exercise if the medication is not intended for this). Sixty-one percent of adults with current asthma who had used quick relief medication in the past three months reported proper use (for episodes or attacks and not on a daily schedule, and not before exercise if the medication is not intended for this). Table 10 below shows details for all the findings for adults with current asthma.

Table 10
Medication Use among Adults with Current Asthma, NJ Asthma Call-back Survey (ACBS) 2008-2010*

	Percent (95% CI)
Prescription medication taken in past 3 months	63.4 (57.7-69.1)
Any long-term control medicine in past 3 months	41.3 (36.3-46.3)
Proper use, inhaled long-term control medicine*	52.0 (44.6-59.4)
Any quick relief medicine in past 3 months	48.7 (43.1-54.2)
Proper use, inhaled quick relief medicine**	61.0 (53.6-68.5)
Type of medication used	
No prescription	37.1 (31.4-42.8)
Quick relief only	22.0 (17.2-26.8)
Long-term control only	14.5 (11.7-17.4)
Long-term control & quick relief	26.4 (22.1-30.6)
Ever used OTC (nonprescription) for asthma	25.6 (20.8-30.4)
Ever used prescription inhaler	96.2 (94.2-98.3)
Health professional instruction on use?***	95.8 (93.8-97.8)
Health professional watched you use?***	80.5 (76.7-84.4)

Note: Except where noted, medication means any form of medication (e.g., inhaler, pills, syrup, nebulizer). There was no significant change in prevalence from 2008 to 2010 on these measures.

*Proper use is calculated only among those who used inhaled long-term control medication, and is defined as taking all inhaled long-term control medication on a schedule every day, not taking it medication for an attack and not taking it before exercise if it was not designed for this purpose.

**Proper use is calculated only among those who used inhaled quick relief medication, and is defined as not taking any inhaled quick relief medication on a schedule every day, taking it for an attack and not taking it before exercise if it was not designed for this purpose.

***Among those who have ever used a prescription inhaler.
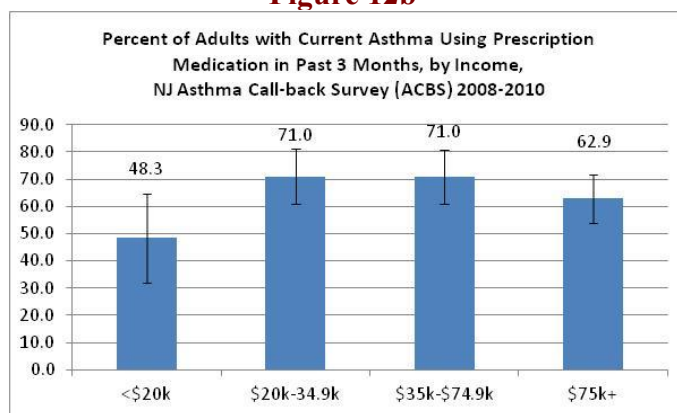
There were some demographic differences in medication use. There were significant differences among the percent of adults with current asthma using any prescription medication in the past three months by age and household income groups, as shown in Figures 12a and 12b below.

Figure 12a
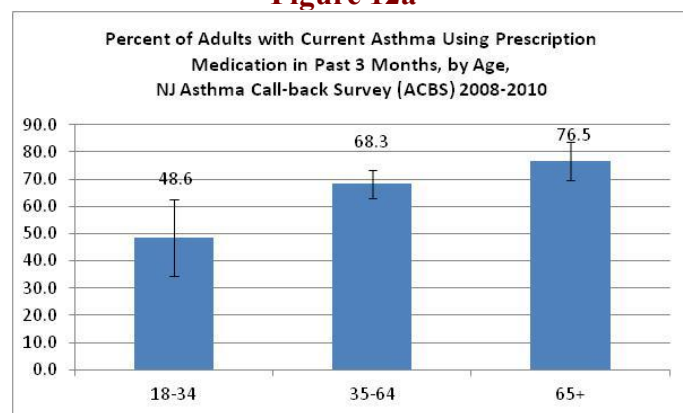
Rao-Scott Chi Square, p=.0003

Figure 12b

Rao-Scott Chi Square, p=.0404

Younger adults age 18-34 were less likely to have used a long-term control medication in the past three months than older age groups, as shown below in Figure 13.
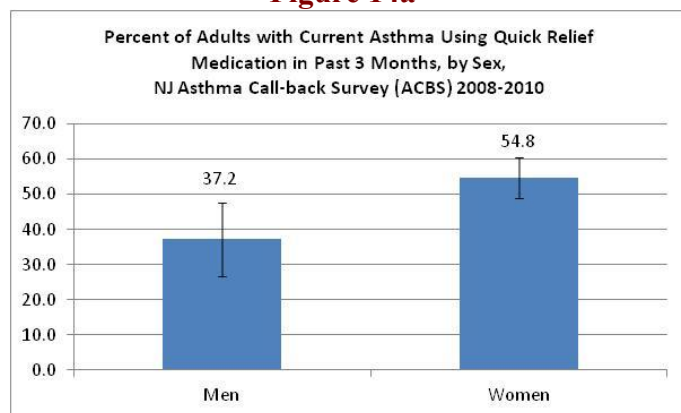
Figure 13

Percent of Adults with Current Asthma Using Long-term Control Medication in Past 3 Months, by Age, NJ Asthma Call-back Survey (ACBS) 2008-2010
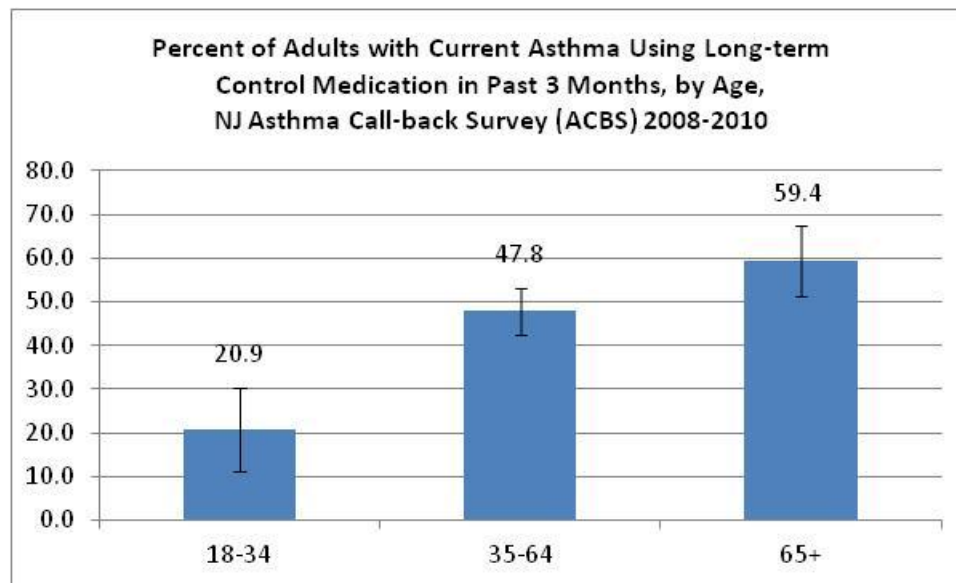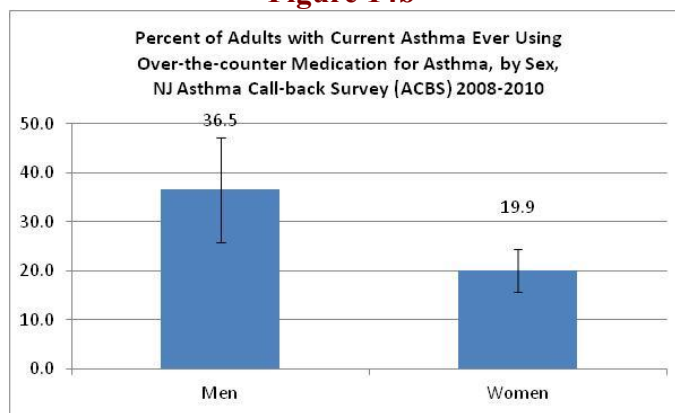
Rao-Scott Chi Square, p<.0001

Women were more likely than men to have used a quick relief medication in the past three months, and less likely than men to ever have used over-the-counter medicine for asthma, as shown below in Figures 14a and 14b.

Figure 14a

Percent of Adults with Current Asthma Using Quick Relief Medication in Past 3 Months, by Sex, NJ Asthma Call-back Survey (ACBS) 2008-2010

Rao-Scott Chi Square, p=.0035

Figure 14b

Percent of Adults with Current Asthma Ever Using Over-the-counter Medication for Asthma, by Sex, NJ Asthma Call-back Survey (ACBS) 2008-2010
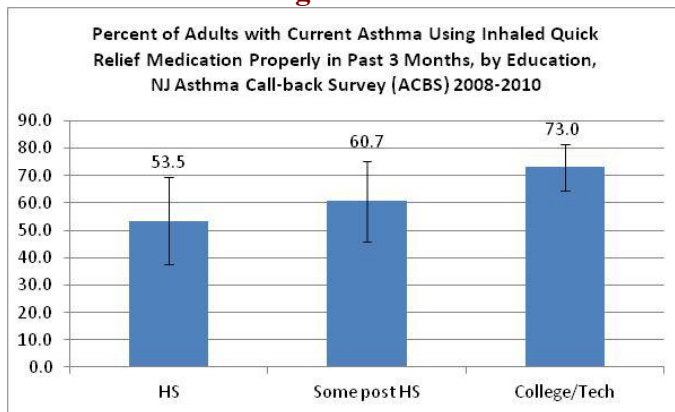
Rao-Scott Chi Square, p=.0018

Finally, there were some differences by respondent education, race/ethnicity and household income in the percent of adults with current asthma who used inhaled quick relief medication properly in the past three months, as shown in Figures 15a, 15b and 16 below. Properly was defined as not taking any inhaled quick relief medication on a schedule every day but rather taking it for an attack or episode of asthma, and not taking it before exercise if it was not designed for this purpose. We were not able to calculate reliable estimates for adults with less than a high school education or Hispanic adults because there weren't enough cases.

Figure 15a

Percent of Adults with Current Asthma Using Inhaled Quick Relief Medication Properly in Past 3 Months, by Education, NJ Asthma Call-back Survey (ACBS) 2008-2010

HS: 53.5
Some post HS: 60.7
College/Tech: 73.0

Rao-Scott Chi Square, p=.0171

Figure 15b

Percent of Adults with Current Asthma Using Inhaled Quick Relief Medication Properly in Past 3 Months, by Race, NJ Asthma Call-back Survey (ACBS) 2008-2010

White, Non-Hispanic: 71.6
Black, Non-Hispanic: 43.0
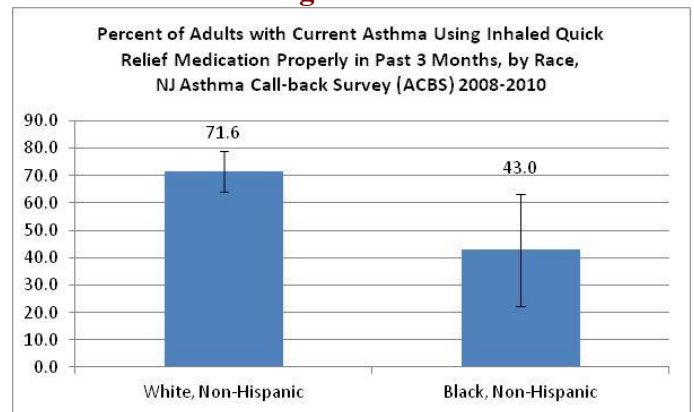
Rao-Scott Chi Square, p=.0013

Figure 16

Percent of Adults with Current Asthma Using Inhaled Quick Relief Medication Properly in Past 3 Months, by Income, NJ Asthma Call-back Survey (ACBS) 2008-2010

<$20k: 34.4
$20k-34.9k: 44.5
$35k-$74.9k: 68.5
$75k+: 65.3
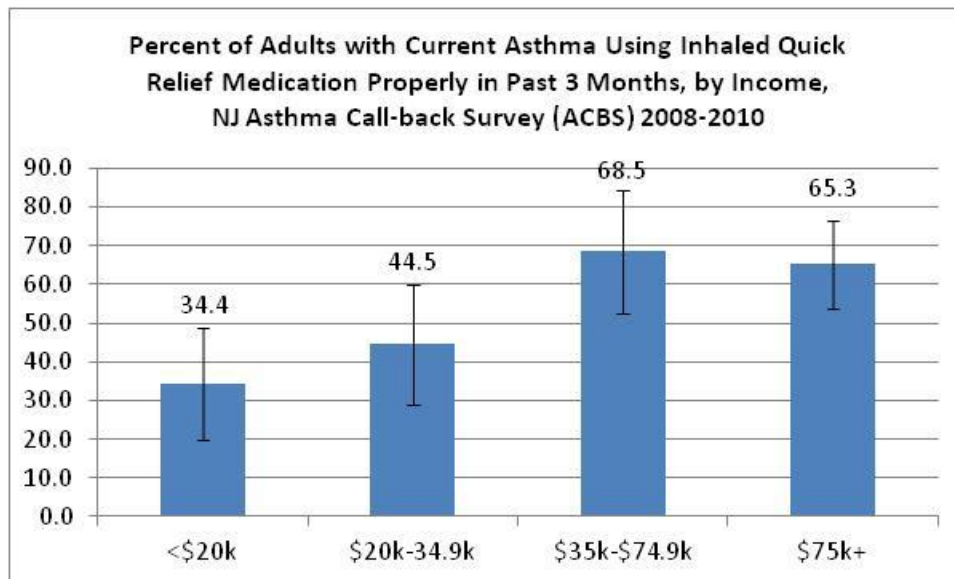
Rao-Scott Chi Square, p=.0066

Cost Barriers

Adult respondents with current asthma were asked if there was a time in the past 12 months when they needed primary care, specialist care, or medications for their asthma but were unable to access them because of the cost. Nearly 19 percent of adults with current asthma had at least one cost barrier to their asthma care, nearly 10 percent had two or more and slightly less than 5 percent had all three barriers. The most frequent barrier was in accessing medications, with about 13 percent of respondents reporting a cost barrier. Access to primary care was next, with about 11 percent reporting a cost barrier, followed by access to specialist care, where nearly 9 percent reported a cost barrier. As Table 11 on the following page shows, there were differences by age, race/ethnicity, household income and respondent education in the reporting of barriers. We combined several years of data to allow for more subgroup analysis, but there were still too few respondents to report estimates for most subgroups with respect to access to specialist care and in several cases for primary care as well. There were no significant differences in the prevalence of barriers across the years combined.

Older respondents were less likely to report barriers (any barrier, medications) than middle-aged people. White, non-Hispanic respondents were less likely to report any barrier or barriers to medication than Black, non-Hispanic or Hispanic respondents. In general, respondents from higher income households and respondents with higher levels of education were less likely to report cost barriers.

Table 11				
Adults with Current Asthma with Cost Barriers, NJ Asthma Call-back Survey (ACBS) 2008-2010				
	Any Barrier	**Primary Care Doctor**	**Specialist**	**Medication**
	Percent (95%CI)	**Percent (95%CI)**	**Percent (95%CI)**	**Percent (95%CI)**
Sex				
Males	18.1 (7.8-28.5)	*	*	*
Females	18.7 (14.4-22.9)	11.4 (8.1-14.8)	8.5 (5.5-11.4)	14.6 (10.8-18.7)
Age				
18-34 years	20.1 (8.4-31.8)	*	*	**11.9 (4.9-18.9)**
35-64 years	20.1 (15.5-24.8)	13.4 (9.4-17.4)	10.0 (6.6-13.3)	**16.2 (11.8-20.6)**
65+ years	9.2 (5.1-13.4)	*	*	**5.0 (2.3-7.7)**
Race/Ethnicity				
White, Non-Hispanic	**12.4 (8.3-16.4)**	7.8 (4.5-11.2)	**3.9 (2.3-5.5)**	**8.7 (5.6-11.9)**
Black, Non-Hispanic	**34.8 (18.6-51.0)**	15.0 (6.3-23.7)	*	**21.4 (10.2-32.6)**
Hispanic	**31.7 (17.8-45.6)**	*	*	**29.7 (15.9-43.5)**
Household Income				
Less than -$19,999	**42.4 (25.1-59.6)**	**25.4 (11.3-39.5)**	*	**21.4 (10.3-32.6)**
$20,000-$34,999	**37.7 (26.8-48.7)**	**22.3 (13.8-30.8)**	**15.0 (7.7-22.3)**	**32.2 (21.4-43.0)**
$35,000-$74,999	**15.0 (8.6-21.5)**	**9.2 (3.8-14.7)**	*	**10.4 (5.1-15.6)**
$75,000 +	*	*	*	*
Respondent Education				
Did Not Graduate High School	**40.4 (23.6-57.1)**	**27.4 (12.4-42.3)**	*	**32.6 (16.5-48.7)**
High School Graduate	**25.4 (13.4-37.3)**	**13.7 (5.8-21.6)**	*	**11.5 (5.9-17.0)**
Attended College or Technical School	**18.2 (10.9-25.6)**	**10.9 (5.3-16.5)**	**4.7 (2.0-7.4)**	**16.6 (9.3-23.8)**
College or Technical School Graduate	**9.2 (4.9-13.6)**	**4.9 (2.1-7.7)**	*	**7.8 (3.5-12.0)**
Total				
	18.5 (14.0-23.0)	10.7 (7.6-13.9)	8.6 (5.1-12.2)	13.2 (9.9-16.5)

*Standard errors were larger than the allowable reported range
There were no significant differences in prevalence from 2008-2010 on these measures. Based on the Rao-Scott Chi-Square Test, the percent with any cost barrier to asthma care is associated with race/ethnicity (p=.0003), household income (p<.0001) and respondent education (p=.0002); the percent with a cost barrier to asthma primary care is associated with household income (p<.0001) and respondent education (p=.0008); the percent with a cost barrier to specialist asthma care is associated with race/ethnicity (p=.0002), household income and respondent education (both p<.0001); and the percent with a cost barrier to medications is associated with age (p=.0312), race/ethnicity (p<.0001), household income (p<.0001) and respondent education (p=.0007). Significant differences are shown in bold print.

Comorbid Conditions, Body Mass and Smoking History

About one-third of adults with current asthma in 2008-2010 had COPD, which includes emphysema and chronic bronchitis. A little more than one-quarter had depression.

Both conditions varied with levels of household income and respondent education—those with higher levels of income and education had a lower chance of having all of these conditions. Age and sex were significant factors for COPD. Older respondents were more likely to have COPD. Nearly 40 percent of adult women with current asthma reported having COPD, as opposed to about 22 percent of adult men with current asthma. Race/ethnicity was a significant factor for depression--Black, non-Hispanic adults with current asthma were less likely to report the condition. Table 12 below shows a demographic breakdown of the prevalence of COPD and depression for adults with current asthma. Where there is a significant difference between groups, numbers are shown in boldface type.

Table 12		
Lifetime History of Comorbid Conditions among Adults with Current Asthma, NJ Asthma Call-back Survey (ACBS) 2008-2010		
	COPD*	Depression
	Percent (95% CI)	Percent (95% CI)
Sex		
Males	**22.2 (14.1-30.4)**	22.3 (12.5-32.2)
Females	**39.8 (34.3-45.2)**	29.8 (24.4-35.2)
Age		
18-34 years	**16.2 (7.1-25.2)**	23.6 (11.0-36.2)
35-64 years	**37.7 (32.6-42.8)**	30.1 (25.3-34.8)
65+ years	**56.0 (48.0-64.0)**	24.6 (17.9-31.4)
Race/Ethnicity		
White, Non-Hispanic	31.7 (26.4-37.1)	**27.1 (21.0-33.3)**
Black, Non-Hispanic	38.0 (24.2-51.8)	**15.4 (8.0-22.8)**
Hispanic	37.3 (23.7-50.9)	**42.2 (27.8-56.7)**
Household Income		
Less than -$19,999	**53.2 (36.3-70.1)**	**35.2 (21.0-49.4)**
$20,000-$34,999	**45.9 (34.5-57.2)**	**42.1 (31.0-53.2)**
$35,000-$74,999	**36.1 (26.9-45.3)**	**25.8 (16.4-35.2)**
$75,000 +	**19.6 (13.7-25.5)**	**14.6 (8.9-20.3)**
Respondent Education		
Did Not Graduate High School	**57.2 (39.0-75.4)**	**58.7 (43.0-74.4)**
High School Graduate	**42.5 (31.5-53.4)**	**31.5 (20.2-42.7)**
Attended College or Technical School	**36.4 (27.5-45.2)**	**23.7 (17.1-30.4)**
College or Technical School Graduate	**20.9 (15.3-26.4)**	**19.3 (12.4-26.2)**
Total	33.7 (29.1-38.4)	27.3 (22.4-32.1)

*Includes emphysema and chronic bronchitis.
There was no significant difference in prevalence of COPD or Depression from 2008-2010. Based on the Rao-Scott Chi-Square Test, the percent with COPD is associated with sex (p=.0014), age, household income and respondent education (all p<.0001); the percent with Depression is associated with race/ethnicity (p=.0209), household income (p=.0003) and respondent education (p<.0001).

Other conditions are asked about on the New Jersey Behavioral Risk Factor Surveillance System (BRFSS) Survey, which allows comparison with adults without asthma. Figure 17 below shows the prevalence of diabetes (not including gestational, borderline or pre-diabetes), cardiovascular disease (including a history of heart attack, stroke, angina or coronary heart disease) and arthritis among adults with current asthma, former asthma (adults who have been diagnosed at some point but who do not currently have asthma) and those who have never had asthma. The prevalence of each condition is higher among adults with current asthma than among those with former asthma and those who have never had asthma.

Figure 17
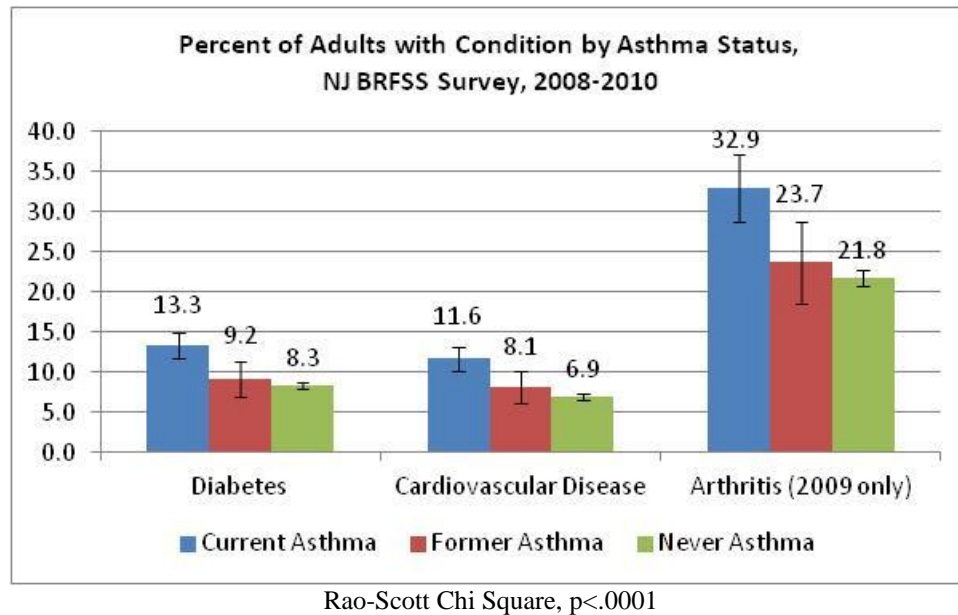

Rao-Scott Chi Square, p<.0001

Table 13 below shows a breakdown of prevalence by demographic category for adults with current asthma. Where there is a significant difference between groups, numbers are shown in boldface type. All of the conditions are show increasing prevalence with age. Cardiovascular disease and arthritis are associated with sex—men are more at risk for cardiovascular disease and women are more at risk for arthritis. Diabetes and cardiovascular disease are associated with race/ethnicity, household income and respondent education. Black, non-Hispanic adults are at higher risk for these conditions than are white, non-Hispanic adults, and Hispanic adults fall between the two other groups. Adults with higher household incomes and higher educational levels are less at risk for these conditions.

	Table 13		
	Lifetime History of Comorbid Conditions among Adults with Current Asthma, NJ BRFSS 2008-2010		
	Diabetes*	**Cardiovascular Disease****	**Arthritis (2009 only)**
	Percent (95% CI)	**Percent (95% CI)**	**Percent (95% CI)**
Sex			
Males	11.7 (8.9-14.4)	**14.5 (11.4-17.7)**	**23.4 (16.1-30.7)**
Females	14.2 (12.2-16.2)	**10.1 (8.6-11.6)**	**37.1 (32.3-41.8)**
Age			
18-34 years	**4.0 (1.6-6.4)**	†	†
35-64 years	**13.3 (11.2-15.4)**	**11.4 (9.4-13.4)**	**40.0 (34.8-45.1)**
65+ years	**32.5 (27.8-37.2)**	**33.8 (29.2-38.5)**	**60.3 (51.9-68.3)**
Race/Ethnicity			
White, Non-Hispanic	**10.7 (9.0-12.4)**	**10.5 (8.9-12.0)**	35.3 (30.2-40.5)
Black, Non-Hispanic	**19.8 (14.5-25.0)**	**13.6 (9.3-17.9)**	28.7 (18.7-38.9)
Hispanic	**14.6 (10.2-19.1)**	**11.1 (7.1-15.0)**	32.9 (21.6-44.2)
Household Income			
Less than -$19,999	**20.4 (15.4-25.4)**	**17.4 (12.7-22.1)**	36.4 (24.5-48.3)
$20,000-$34,999	**19.8 (15.4-24.2)**	**15.8 (12.0-19.6)**	40.4 (30.4-50.4)
$35,000-$74,999	**15.6 (11.6-19.6)**	**13.8 (10.1-17.5)**	31.1 (22.9-39.4)
$75,000 +	**5.1 (3.3-6.9)**	**5.1 (3.4-6.7)**	25.2 (18.8-31.6)
Respondent Education			
Did Not Graduate High School	**25.7 (19.0-32.4)**	**22.1 (16.0-28.1)**	40.8 (25.4-56.1)
High School Graduate	**17.6 (13.8-21.3)**	**13.0 (10.1-15.9)**	32.3 (24.9-39.7)
Attended College or Technical School	**10.8 (8.0-13.6)**	**11.9 (8.8-15.0)**	32.6 (24.1-41.1)
College or Technical School Graduate	**7.7 (5.8-9.5)**	**7.4 (5.5-9.2)**	31.4 (25.2-37.6)
Total	13.3 (11.7-14.9)	11.6 (10.2-13.1)	32.9 (28.8-37.1)

*Does not include gestational diabetes, pre-diabetes or borderline diabetes.

**Includes history of heart attack, stroke, angina or coronary heart disease.

† Standard errors were larger than the allowable reported range.

There were no significant differences in prevalence from 2008-2010 on these measures. Based on the Rao-Scott Chi-Square Test, the percent with Diabetes is associated with age (p<.0001), race/ethnicity (p=.0020), household income (p<.0001) and respondent education (p<.0001); the percent with Cardiovascular Disease is associated with sex (p=.0075), age (p<.0001), race/ethnicity (p=.0218), household income (p<.0001) and respondent education (p<.0001); the percent with Arthritis is associated with sex (p=.0036) and age (p<.0001). Significant differences are shown in bold.

Figure 18 below shows body mass index category differences by asthma status for New Jersey adults. Adults with current asthma are more likely to be obese and less likely to be either under or normal weight or overweight than are adults who never had asthma.

Figure 18

Percent of Adults, Body Mass Index Category by Asthma Status, NJ BRFSS Survey, 2008-2010
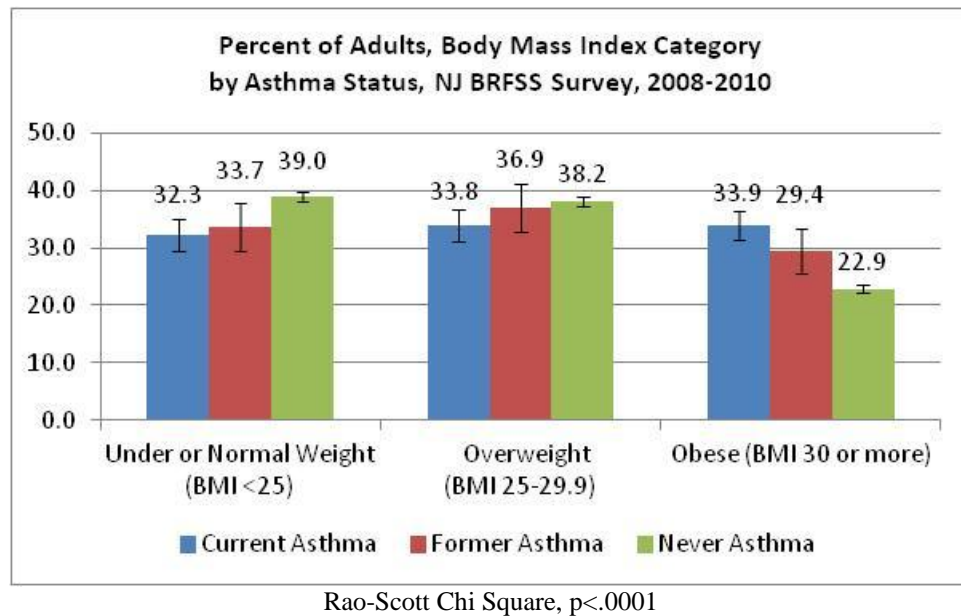
Rao-Scott Chi Square, p<.0001

Table 14 below shows a breakdown of body mass index category by demographic category for adults with current asthma. All of the demographic groups show a significant difference. With respect to obesity, adults 18 to 34 years of age are less likely to be obese than the older age groups. Black, non-Hispanic adults are more likely to be obese than white, non-Hispanic adults. Adults in households with income of $75,000 per year or more are the least likely to be obese, as are respondents with the highest level of education.

	Under or Normal Weight (BMI <25)	Overweight (BMI 25-29.9)	Obese (BMI 30 and over)
Table 14			
Body Mass Index Category among Adults with Current Asthma, NJ BRFSS 2008-2010			
	Under or Normal Weight (BMI <25)	**Overweight (BMI 25-29.9)**	**Obese (BMI 30 and over)**
	Percent (95% CI)	**Percent (95% CI)**	**Percent (95% CI)**
Sex			
Males	**27.4 (21.8-33.0)**	**41.5 (35.8-47.1)**	**31.1 (26.3-36.0)**
Females	**35.1 (32.0-38.2)**	**29.5 (26.7-32.3)**	**35.4 (32.5-38.3)**
Age			
18-34 years	**43.3 (36.4-50.3)**	**32.1 (25.6-38.7)**	**24.5 (19.0-30.1)**
35-64 years	**27.1 (24.3-30.0)**	**33.7 (30.7-36.8)**	**39.1 (36.1-42.2)**
65+ years	**27.5 (23.2-31.9)**	**37.5 (32.8-42.2)**	**34.9 (30.3-39.6)**
Race/Ethnicity			
White, Non-Hispanic	**34.6 (31.2-37.9)**	**34.7 (31.2-38.1)**	**30.8 (27.7-33.8)**
Black, Non-Hispanic	**26.0 (17.9-34.1)**	**28.3 (22.1-34.5)**	**45.7 (38.3-53.2)**
Hispanic	**29.6 (21.6-37.6)**	**33.0 (25.6-40.3)**	**37.4 (30.4-44.5)**
Household Income			
Less than -$19,999	**32.3 (23.3-41.3)**	**30.5 (23.1-38.0)**	**37.1 (30.1-44.1)**
$20,000-$34,999	**24.6 (18.8-30.3)**	**30.1 (24.2-35.9)**	**45.4 (39.3-51.5)**
$35,000-$74,999	**34.0 (28.4-39.6)**	**31.5 (26.4-36.7)**	**34.4 (29.0-39.8)**
$75,000 +	**35.1 (30.3-39.9)**	**37.4 (32.7-42.1)**	**27.5 (23.3-31.7)**
Respondent Education			
Did Not Graduate High School	**26.0 (17.5-34.6)**	**30.0 (21.4-38.6)**	**44.0 (35.2-52.7)**
High School Graduate	**28.3 (22.6-34.0)**	**31.5 (26.3-36.7)**	**40.2 (34.9-45.4)**
Attended College or Technical School	**29.2 (23.7-34.7)**	**35.3 (29.4-41.2)**	**35.5 (30.3-40.8)**
College or Technical School Graduate	**40.0 (35.4-44.5)**	**35.7 (31.5-39.9)**	**24.4 (20.7-28.0)**
Total	32.3 (29.5-35.2)	33.8 (31.1-36.6)	33.9 (31.2-36.4)

There were no significant differences in prevalence from 2008-2010 on these measures. Based on the Rao-Scott Chi-Square Test, Body Mass Index category differences are associated with sex (p=.0007), age (p<.0001), race/ethnicity (p=.0083), household income (p=.0032) and respondent education (p<.0001).

Figure 19 below shows lifetime smoking history differences by asthma status for New Jersey adults. Adults with current asthma are more likely to be current or former smokers and less likely to have never smoked than are adults who never had asthma.
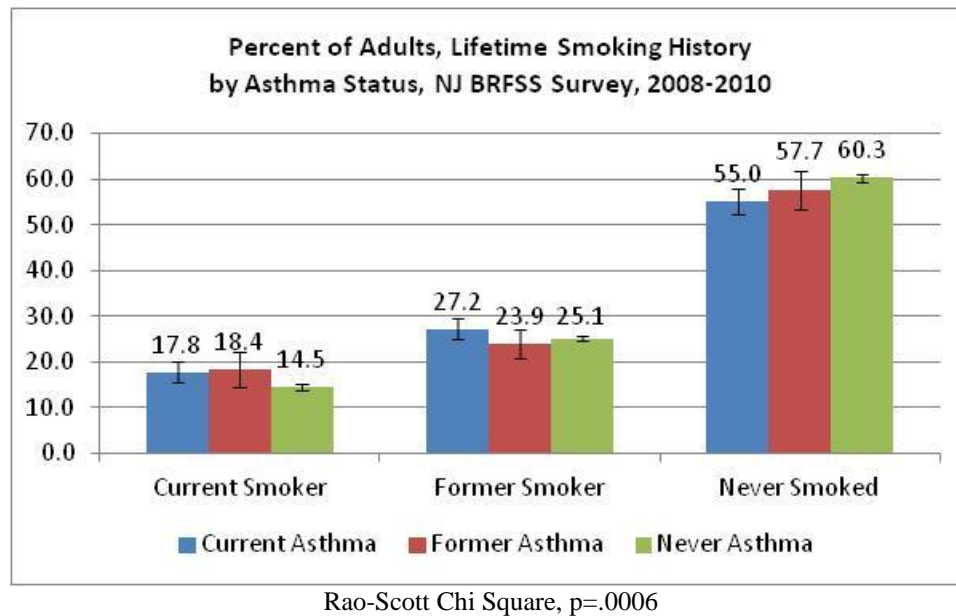
Figure 19

Rao-Scott Chi Square, p=.0006

Table 15 below shows a breakdown of lifetime smoking history by demographic category for adults with current asthma. There are significant differences by age, race/ethnicity, household income and respondent education (all categories showing differences are shown in boldface print). Adults with current asthma in households with income of less than $35,000 per year and those with a high school education or less were the most likely to be current smokers. Adults in households with income above $75,000 per year, those with the highest levels of education, and young adults aged 18-34 were the most likely to never have smoked.

	Table 15		
	Lifetime Smoking History among Adults with Current Asthma, NJ BRFSS 2008-2010		
	Current Smoker	**Former Smoker**	**Never Smoked**
	Percent (95% CI)	**Percent (95% CI)**	**Percent (95% CI)**
Sex			
Males	20.5 (15.4-25.7)	27.6 (23.0-32.2)	51.9 (46.2-57.5)
Females	16.3 (14.1-18.5)	27.0 (24.5-29.5)	56.7 (53.8-59.6)
Age			
18-34 years	**18.7 (13.1-24.3)**	**13.7 (9.0-18.4)**	**67.6 (61.1-74.0)**
35-64 years	**20.5 (17.8-23.2)**	**29.5 (26.8-32.2)**	**50.0 (46.9-53.1)**
65+ years	**6.2 (4.4-8.1)**	**47.2 (42.5-51.9)**	**46.6 (41.8-51.3)**
Race/Ethnicity			
White, Non-Hispanic	**16.7 (14.0-19.4)**	**31.0 (28.2-33.8)**	**52.3 (49.0-55.7)**
Black, Non-Hispanic	**20.7 (14.9-26.6)**	**24.4 (17.5-31.4)**	**54.8 (47.4-62.3)**
Hispanic	**22.1 (14.8-29.3)**	**21.5 (15.9-27.1)**	**56.4 (48.8-64.1)**
Household Income			
Less than -$19,999	**33.1 (25.2-40.9)**	**21.6 (15.0-28.1)**	**45.3 (37.5-53.2)**
$20,000-$34,999	**26.7 (20.9-32.6)**	**29.7 (24.4-35.1)**	**43.5 (37.6-49.5)**
$35,000-$74,999	**14.5 (10.4-18.6)**	**29.0 (24.5-33.5)**	**56.5 (51.1-61.9)**
$75,000 +	**10.3 (6.8-13.8)**	**26.4 (22.6-30.2)**	**63.3 (58.8-67.8)**
Respondent Education			
Did Not Graduate High School	**27.2 (19.5-35.0)**	**26.7 (19.9-33.5)**	**46.1 (37.4-54.7)**
High School Graduate	**25.8 (20.8-30.8)**	**32.0 (26.9-37.0)**	**42.2 (36.9-47.6)**
Attended College or Technical School	**19.6 (14.6-24.6)**	**28.7 (24.2-33.1)**	**51.8 (46.1-57.4)**
College or Technical School Graduate	**7.0 (4.8-9.2)**	**22.4 (19.3-25.6)**	**70.6 (67.0-74.2)**
Total	17.8 (15.5-20.1)	27.2 (24.9-29.5)	55.0 (52.3-57.8)

There were no significant differences in prevalence from 2008-2010 on these measures. Based on the Rao-Scott Chi-Square Test, lifetime smoking history differences are associated with age (p<.0001), race/ethnicity (p=.0002), household income (p<.0001) and respondent education (p<.0001). Significant differences are shown in bold print.

Complementary and Alternative Care

Adults with current asthma are asked about their use of complementary or alternative care, which consists of a variety of practices and products not currently considered part of conventional medicine that are used together with conventional medicine (complementary) or in place of conventional medicine (alternative). Table 16 summarizes the most commonly used types of care. About 42 percent of adults with current asthma reported using one or more methods of complementary or alternative care. The most commonly used method was breathing techniques, reported by 30 percent of adults with current asthma. Vitamins were a distant second, reported by 11 percent of respondents. Self-care methods (herbs, vitamins, aromatherapy, homeopathy, yoga and breathing techniques) were much more common than practitioner-based methods (acupuncture, acupressure, reflexology and naturopathy), with 38 percent of adults reporting any self-care method versus only six percent reporting any practitioner-based method. About 18 percent of adults with current asthma reported using two or more complementary or alternative methods, and only eight percent reported using three or more.

Table 16	
Adults with Current Asthma who Utilize Various Methods of Complementary and Alternative Care, NJ Asthma Call-back Survey (ACBS) 2008-2010	
Care Method	**Percent (95% confidence interval)**
Breathing techniques	30.1 (25.3-35.0)
Vitamins	11.1 (8.2-14.1)
Yoga	5.6 (3.3-7.9)
Herbs	5.4 (3.3-7.5)
Self-care methods (herbs, vitamins, aromatherapy, homeopathy, yoga, breathing)	38.0 (33.0-43.0)
Practitioner-based methods (acupuncture, acupressure, reflexology, naturopathy)	5.7 (3.3-8.2)
Any method	41.9 (36.7-47.0)
Two or more methods	17.7 (13.9-21.5)
Three or more methods	7.8 (5.4-10.3)

Based on the Rao-Scott Chi-Square Test, there was no significant difference by sex, age, race/ethnicity, household income or respondent education in the use of one or more methods, nor was there a significant difference in prevalence across the three years of data.

Acronyms:

CI – Confidence Interval

BMI – Body Mass Index

ACBS – Asthma Call-back Survey

Definitions:

<u>**Lifetime Asthma**</u> – Proportion of the population who have ever had an asthma diagnosis (on the NJBRFS, a "Yes" response to "Have you ever been told by a doctor or other health professional that you have asthma?")

<u>**Current Asthma**</u> – Proportion of the population who reports having asthma at the time of the survey (on the NJBRFS, a "Yes" response to "Do you still have asthma?")

<u>**Former Asthma**</u>– Proportion of the population who reports not having asthma at the time of the survey (on the NJBRFS, a "No" response to "Do you still have asthma?")

<u>**Confidence Interval**</u> – A range of values within which the actual value is likely to fall

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www.nj.gov/health/asthma

For asthma resources from the Pediatric Adult Asthma Coalition of New Jersey (PACNJ):
www.pacnj.org

For more information about the NJBRFS:
www.nj.gov/health/asthma

For more information about the BRFSS:
www.cdc.gov/brfss

For more information about the Asthma Call-back Survey:
http://www.cdc.gov/brfss/acbs/index.htm